REMARKS

This application has been amended. Specifically, claim 3 has been amended to define the bacterial sludge as having a core-sheath structure. Support can be found on page 14, lines 14-19 of the application as filed. Thus, no new matter has been added. In addition, claims 1 and 4-15, drawn to a non-elected invention, have been canceled without prejudice to pursuing patent protection on the non-elected claims through the filing of a divisional application. Therefore, claims 3 and 16-27 are pending, of which claim 3 is in independent form. For the following reasons, Applicants submit that the pending claims are patentable over the cited art of record and the application is in condition for allowance.

Claims 3 and 16-27 stand rejected under 35 U.S.C. § 103(a) for obviousness over U.S. Patent No. 7,314,741 to Tal et al. in view of the article by Rouse et al. entitled "Continuous Treatment Studies of Anaerobic Oxidation of Ammonium Using a Nonwoven Biomass Carrier" and the article by Tokitoh et al. entitled "Study on Nitrous Acidification Treatment with an Adhesion Immobilization Method." This rejection is respectfully traversed.

Claim 3 is directed to a process for treating ammonia containing wastewater. The method includes a step of bringing an ammonia-treating material and ammonia containing wastewater into contact with each other to remove ammonia in the wastewater continuously as nitrogen gas. The ammonia-treating material comprises a long carrier, which includes a net, nonwoven fabric or woven fabric having fibers or filaments and attached to a support, and a complex bacterial sludge attached and immobilized on the carrier. In the complex bacterial sludge, the autotrophic anammox bacteria are present within the bacterial sludge including autotrophic ammonia-oxidizing bacteria such that the complex bacterial sludge has a core-sheath structure.

Tal is directed to a marine water filtration system that includes Planctomycetes capable of removing ammonia from the surrounding water by the anammox process. The filtration system can be made up of beads which contain the Planctomycetes on their surface. The Office Action contends that Tal teaches the use

of a bacterial sludge comprising both ammonia oxidizing bacteria and anammox bacteria disposed on a carrier (beads) and support (filter). The Office Action cites, for support, lines 15-25 of column 6 of Tal.

In Tal, such as shown in Examples 3 and 4, the ammonia-oxidizing bacteria and the anammox bacteria are separated from one another, either on different parts of a common filter or on different filters altogether. For instance, Figure 1 of Tal shows a one stage process which is described beginning with line 30 of column 5 as having a filter where the lower part is oxygenated so that ammonia oxidizing bacteria convert some of the ammonia to nitrite while the upper part of the filter operates under anaerobic condition. Figure 2 of Tal, described in column 6, shows a two stage filter arrangement where the first filter operates under aerobic conditions to promote ammonia-oxidizing bacteria and the second filter operates under anaerobic conditions to induce the anammox process. This two stage filter setup is the arrangement relied on in the Office Action.

Through this arrangement, Tal clearly separates ammonia-oxidizing bacteria and anamox bacteria to ensure the ammonia-oxidizing bacteria can operate in an aerobic environment while the anammox bacteria can operate in an anaerobic environment. This arrangement requires two zones (or tanks) operating at different oxygen concentrations. However, claim 3 of the pending application describes an arrangement where the bacterial sludge including autotrophic anammox bacteria are present within the bacterial sludge including autotrophic ammonia-oxidizing bacteria. The arrangement of the bacterial sludge is further defined in claim 3 as a core-sheath arrangement. This arrangement of the bacterial sludge is clearly different from in Tal where the filter system has an ammonia oxidizing bacteria at one location (operating in an aerobic environment) and anammox organisms at a separate location (operating in an anaerobic environment). Moreover, Tal's described carrier is limited to a polyethylene bead. Such a carrier cannot form the core-sheath arrangement now claimed.

Rouse and Tokitoh are cited as allegedly suggesting the use of a long carrier comprised of a net of woven or nonwoven fabrics, which feature is also admittedly absent from Tal. However, these references do not cure the above deficiencies of Tal. Tokitoh is limited to use of nitrification bacteria alone and Rause uses anammox bactera alone. Thus, these references would not suggest modifying Tal to create a core-sheath arrangement of the bacteria. Moreover, modifying Tal so that the anammox bacteria are present within the bacterial sludge including autotrophic ammonia-oxidizing bacteria so that the complex bacterial sludge has a core-sheath structure would be wholly inconsistent with Tal's teachings of separating the annamox bacteria and ammonia-oxidizing bacteria into different zones with controlled oxygen content in each.

Therefore, claims 3 and 16-27 are patentable over the cited art and the rejection of these claims under 35 U.S.C. § 103(a) for obviousness over Tal in view of Rouse and Tokitoh should be reconsidered and withdrawn.

Supplemental Information Disclosure Statement

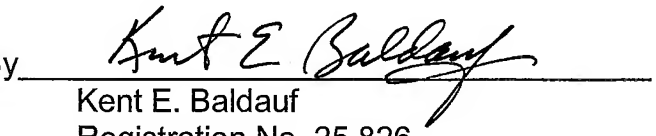
Applicants note that a Supplemental Information Disclosure Statement was filed on April 12, 2010 listing a document cited during prosecution of a counterpart Japanese application. Consideration of the document cited therein prior to issuance of the next Office Action on the merits is respectfully requested.

CONCLUSION

For the foregoing reasons, Applicants submit that the pending claims are patentable over the cited art of record and are in condition for allowance. Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 3 and 16-27 are respectfully requested.

Respectfully submitted,

THE WEBB LAW FIRM

By 

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